September 18, 2017

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Office of Pollution Prevention and Toxics (OPPT)
Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

Subject: Scope of Risk Evaluation for Asbestos; Docket ID No.: EPA-HQ-OPPT-2016-0736

Filed via the Federal eRulemaking Portal: http://www.regulations.gov

Dear Sir or Madam:

The Industrial Minerals Association – North America (IMA-NA) is a trade association created to advance the interests of North American companies that extract and process industrial minerals used throughout the manufacturing and agricultural industries. North American industrial minerals play an integral role in fostering economic prosperity and the high standard of living that we enjoy. IMA-NA is pleased to offer the following comments in response to the U.S. Environmental Protection Agency's (EPA or Agency) *Scope of Risk Evaluation for Asbestos*, EPA Document EPA-740-R1-7008 (June 2017), issued by the Office of Chemical Safety and Pollution Prevention. The comments are submitted pursuant to a Memorandum from Niva Kramek, Associate Chief, Existing Chemicals Branch, Chemical Control Division, through Maria J. Doa, Ph.D., Director, Chemical Control Division, issued on June 9, 2017.

According to the Memorandum, "EPA is interested in information from the public that could be useful to the Agency in conducting problem formulation, the next step in the process of conducting the required risk evaluations for these chemicals."

The Scope of the Risk Evaluation for Asbestos document (hereinafter "*Scope Document*") will be central to the Agency in conducting problem formulation. Consequently, IMA-NA offers the following comments.

IMA-NA and its members support the Agency's use of the definition of asbestos as set forth in Section 202 of the Toxic Substances Control Act. In establishing the scope of asbestos minerals that will be subject to the Agency's chemical risk evaluation, it is important to ensure the referenced six substances (chrysotile, crocidolite, cummingtonite-grunerite, anthophyllite, tremolite and actinolite) are included when in fact they have been shown to have crystallized in the asbestiform habit using a comprehensive suite of techniques in microscopy. In order to achieve this goal, it is necessary to obtain precise compositional analysis by means of X-ray

diffraction and energy dispersive spectroscopy (EDS) and, in turn, confirm the shape and habit of crystallization through the use of a polarized light microscope (PLM) and scanning electron microscope.

In Table 2-1 – Physical and Chemical Properties of Asbestos Fiber Types, on Page 18 of 58, EPA references various CAS (Chemical Abstract Service) Registry Numbers referring to "Asbestos Fiber Types." For three of the six references, EPA correctly identifies the asbestiform variety of these mineral phases: chrysotile (CASRN 12001-29-5), amosite (CASRN 12172-73-5), and crocidolite (CASRN 12001-28-4). However for the remaining three, incorrect CAS Registry Numbers are referenced. For these three, the CAS Registry Numbers listed in Table 2-1 are associated with the *non-asbestiform* variety of these minerals. The correct CAS Registry Numbers should be: tremolite asbestos (CASRN 77536-68-6), anthophyllite asbestos (CASRN 77536-67-5), and actinolite asbestos (CASRN 77536-68-4). Decades ago the Chemical Abstract Service adopted individualized CAS Registry numbers to differentiate selected silicate minerals and their asbestiform counterparts. See IMA-NA Attachment 1.

To avoid confusion over the fact that tremolite, anthophyllite, and actinolite all exist in both the asbestiform and non-asbestiform habit, in all instances throughout the *Scope Document* and related materials, the Agency must refer to these minerals as "anthophyllite asbestos," "tremolite asbestos," and "actinolite asbestos." Following are specific examples within the *Scope Document* where this change must be made in order to avoid confusion.

- Section 2.1.1 – Definition of Asbestos, on Page 17 of 58:

  > "The three varieties of amphibole fibers that are the most commonly found are crocidolite, amosite and tremolite asbestos. Crocidolite and amosite were the only amphiboles with significant industrial uses in recent years. Tremolite asbestos, although having essentially no industrial application, may be found as a contaminant associated with other fibers or in other industrial minerals (e.g., chrysotile and talc) (Virta, 2011)."

- Table 2-1 – Physical and Chemical Properties of Asbestos Fiber Types, on Page 18 of 58:

Table 2-1. Physical and Chemical Properties of Asbestos Fiber Types

	Chrysotile	Amosite	Crocidolite	Tremolite Asbestos	Anthophyllite Asbestos	Actinolite Asbestos
CASRN	12001-29-5	12172-73-5	12001-28-4	~~14567-73-8~~ 77536-68-6	~~17068-78-9~~ 77536-67-5	~~12172-67-7~~ 77536-66

- Section 2.2.2 – Identification of Conditions of Use, on Page 25 of 58:

"Another legacy use not included in the scope of this evaluation is Libby Amphibole asbestos, which is a mixture of several mineral fibers such as winchite, richterite, and tremolite asbestos found in vermiculite ore near Libby, MT.

Section 2.2.2 – Identification of Conditions of Use – *Evidence of Use*, on Page 24 of 58, the *Scope Document* refers to a document located at https://www.epa.gov/sites/production/files/2017-02/documents/asbestos.pdf, which on Page 8 of 15, in turn, refers to the "DeLima Associates Consumer Product Information Database (CPID)" located at https://www.whatsinproducts.com/chemicals/view/1/2240/014567-73-8, which identifies products containing **non**-asbestos tremolite. It is entirely inappropriate for this chain of references to remain in the *Scope Document* and the referenced supporting documents. Doing so incorporates by reference products that do not contain asbestos. IMA-NA made just these points in its comments of March 15, 2017, on EPA's Risk Evaluation Scoping Efforts Under TSCA for Ten Chemical Substances; Asbestos; Docket ID No.: EPA-HQ-OPPT-2016-0736. We respectfully request that the Agency eliminate this incorrect listing of references to avoid confusing the audience working on this important matter. To this end, IMA-NA re-submits its previous comments to EPA. See IMA-NA Attachments 2, 3 and 4.

The reference at Section 2.3.5.3 - General Population Exposures – *Dermal*, on Page 31 of 58, mentions asbestos and other "causative elongate mineral particles (EPMs) (Mazurek et al., 2017)." IMA-NA maintains that elongated mineral particles are not adequately defined. The authors (Mazurek et al.) cite the "NIOSH Roadmap," but this later document only maps research yet to be completed regarding elongated mineral particles, rather than providing definitive conclusions on any potential adverse health effects.

We also believe there are a few errors in Table 2-1 – Physical and Chemical Properties of Asbestos Fiber Types, on Page 19 of 58, for the optical properties of the asbestos minerals. Part of this may be a matter of formatting in the Table (it is somewhat confusing to read "Biaxial oblique extinction" as if it was one property).

The Optical Property row should be broken into three lines: Line 1: Biaxial for all of them; Line 2: Positive elongation for all but crocidolite (which is negative elongation); Line 3: Extinction Angle, which will require a little explanation.

Extinction Angle: All of these minerals show parallel extinction when they occur in the asbestiform habit. Anthophyllite (because it is orthorhombic) is always parallel extinction regardless of habit. The monoclinic amphiboles (amosite, crocidolite, tremolite, and actinolite) can show parallel extinction (even in the non-asbestos habit) when their crystal faces are oriented in on the 100 crystal face. However, in the non-asbestos habit, populations of monoclinic amphibole particles will display inclined extinction.

We have attached two articles that document the extinction properties for tremolite/actinolite. The Table in the EPA 600/R-93/116 (see inset) also documents these properties. See IMA-NA Attachments 5 and 6.

TABLE 2-2. OPTICAL PROPERTIES OF ASBESTOS FIBERS

Mineral	Morphology and Color[1]	Refractive Indices[2] α	Refractive Indices[2] γ[5]	Birefringence[6]	Extinction	Sign of Elongation
Chrysotile (asbestiform serpentine)	Wavy fibers. Fiber bundles have splayed ends and "kinks". Aspect ratio typically >10:1. Colorless[3]	1.493-1.546 1.532-1.549 1.529-1.559 1.544-1.553	1.517-1.557 1.545-1.556 1.537-1.567 1.552-1.561	0.004-0.017	Parallel	+ (length slow)
Amosite (asbestiform grunerite)	Straight to curved, rigid fibers. Aspect ratio typically >10:1. Colorless to brown, nonpleochroic or weakly so.[4] Opaque inclusions may be present	1.657-1.663 1.663-1.686 1.663-1.686 1.676-1.683	1.699-1.717 1.696-1.729 1.696-1.729 1.697-1.704	0.021-0.054	Usually parallel	+ (length slow)
Crocidolite (asbestiform riebeckite)	Straight to curved, rigid fibers. Aspect ratio typically > 10:1. Thick fibers and bundles common, blue to dark-blue in color. Pleochroic.	1.693 1.654-1.701 1.680-1.698	1.697 1.668-1.717 1.685-1.706	0.003-0.022	Usually parallel	- (length fast)
Anthophyllite-asbestos	Straight to curved fibers and bundles. Aspect ratio typically > 10:1. Anthophyllite cleavage fragments may be present with aspect ratios <10:1. Colorless to light brown.	1.598-1.652 1.596-1.694 1.598-1.674 1.6148[7]	1.623-1.676 1.615-1.722 1.615-1.697 1.6362[7]	0.013-0.028	Parallel	+ (length slow)
Tremolite-Actinolite-asbestos	Straight to curved fibers and bundles. Aspect ratio typically > 10:1. Cleavage fragments may be present with aspect ratios <10:1. Colorless to pale green	Tremolite 1.600-1.628 1.604-1.612 1.599-1.612 1.6063[7] Actinolite 1.600-1.628 1.612-1.668 1.613-1.628 1.6126[7]	Tremolite 1.625-1.655 1.627-1.635 1.625-1.637 1.6343[7] Actinolite 1.625-1.655 1.635-1.688 1.638-1.655 1.6393[7]	0.017-0.028 0.017-0.028	Parallel and oblique (up to 21°); Composite fibers show parallel extinction.	+ (length slow)

It is essential the Agency apply proper mineral science and up-to-date information whenever it addresses the generic term "asbestos." Significant and unnecessary confusion is inevitable if it does not.

Thank you for taking time to consider and act upon these comments.

Sincerely,

Ex. 6 - Personal Privacy

Mark G. Ellis
President

cc: Robert Courtnage, Associate Chief, Fibers and Organics Branch, National Program Chemicals Division, Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency

IMA-NA Attachment 1
IMA-NA Attachment 2
IMA-NA Attachment 3 (duplicate)
IMA-NA Attachment 4
IMA-NA Attachment 5
IMA-NA Attachment 6